

BRES et al
Appl. No. 10/568,771
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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (withdrawn). Expandable polystyrene composition in the form of expandable beads, characterised in that is comprises by weight:

- (1) 100 parts of a polymer of styrene,
- (2) from 2.2 to less than 4.0 parts of at least one blowing agent, and
- (3) from 0.01 to 0.4 part of at least one plasticising agent.

2 (withdrawn). Composition according to claim 1, characterised in that the polymer of styrene has a mean molecular mass by weight, Mw, chosen from a range of from 150 000 to 300 000 daltons, and preferably a molecular weight distribution, calculated by the ratio of Mw to the mean molecular mass by number, Mn, of the polymer, chosen from a range of from 1.8 to 2.6.

3 (withdrawn). Composition according to claim 1, characterised in that the blowing agent is chosen from linear or branched (cyclo)alkanes having in particular 4 to 6 carbon atoms.

4 (withdrawn). Composition according to claim 1, characterised in that it comprises from 2.3 to 3.9 parts, preferably from 2.4 to 3.8 parts, more particularly from 2.5 to 3.5 parts by weight of at least one blowing agent.

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5 (withdrawn). Composition according to claim 1, characterised in that the plasticising agent is chosen from mineral oils, white oils, paraffin waxes and Fischer-Tropsch waxes.

6 (withdrawn). Composition according to claim 1, characterised in that it comprises from 0.01 to 0.35 part, preferably from 0.01 to 0.3 part, more particularly from 0.01 to 0.25 part by weight of at least one plasticising agent.

7 (withdrawn). Composition according to claim 1, characterised in that the expandable beads have a size or a diameter chosen from a range of from 0.3 to 3.0 mm.

8 (withdrawn). Composition according to claim 1, characterised in that the expandable beads have a bulk density chosen from a range of from 560 to 700 g/l.

9 (withdrawn). Process for preparing the composition according to claim 1, characterised in that it is carried out in one or more stages and comprises a stage of (co-)polymerisation of the styrene in aqueous suspension.

10 (withdrawn). Process according to claim 9, characterised in that it comprises a stage comprising a (co-)polymerisation of the styrene in aqueous suspension carried out in the presence of the blowing agent and the plasticising agent.

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11 (withdrawn). Process according to claim 9, characterised in that it comprises a first stage of (co-)polymerisation of the styrene in aqueous suspension carried out in the presence of the plasticising agent so as to form beads of a polymer of styrene, and a second stage of impregnation of the beads by the blowing agent more particularly in an aqueous medium.

12 (withdrawn). Process for manufacturing medium-density expanded moulded polystyrene objects, characterised in that it employs an expandable polystyrene composition in the form of expandable beads, containing by weight (1) 100 parts of polymer of styrene, (2) from 2.2 to less than 4.0 parts of at least one blowing agent and (3) from 0 to 0.4 part of at least one plasticising agent, and in that it comprises the following stages:

(i) a pre-expansion stage carried out by heating the expandable beads, so as to form pre-expanded beads with a bulk density chosen from a range of from 40 to 190 g/l,

(ii) a stabilisation stage carried out by contacting the pre-expanded beads with a gaseous medium, in particular air, at a temperature of from 0 to 40°C, under an absolute pressure of from 50 to 160 kPa, for a period of from 6 to 48 hours and

(iii) a moulding stage by introducing and heating the beads thus stabilised into a mould, so as to weld the beads to one another and to form the medium-density expanded moulded polystyrene objects.

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13 (withdrawn). Process according to claim 12, characterised in that it comprises a single pre-expansion stage followed then by the stabilisation stage and by the moulding stage.

14 (withdrawn). Process according to claim 12, characterised in that in the pre-expansion stage, the expandable beads are heated so as to form pre-expanded beads with a bulk density chosen from a range of from 45 to 180 g/l, preferably from 50 or 60 to 150 g/l, more particularly from 50 or 60 to 125 g/l.

15 (previously presented). Pre-expanded beads having a bulk density chosen from a range of from 40 to 190 g/l and containing by weight:

- (a) 100 parts of a polymer of styrene,
- (b) from 0.5 to less than 3.0 parts of at least one blowing agent and
- (c) from 0 to 0.4 part of at least one plasticising agent,

wherein the pre-expanded beads are expandable and in particular capable of subsequent expansion without the addition of a fresh quantity of blowing agent.

16. (canceled)

17 (previously presented). Pre-expanded beads according claim 15, wherein the polymer of styrene has a mean molecular mass by weight, M_w , chosen from a range of from 150 000 to 300 000 daltons, and preferably a molecular weight distribution, calculated by the ratio of M_w to the mean molecular mass by number, M_n , of the

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polymer, chosen from a range of from 1.8 to 2.6.

18 (previously presented). Pre-expanded beads according to claim 15, wherein the blowing agent is chosen from linear or branched (cyclo)alkanes having in particular from 4 to 6 carbon atoms.

18 (previously presented). Pre-expanded beads according to claim 15, wherein the blowing agent is chosen from linear or branched (cyclo)alkanes having in particular from 4 to 6 carbon atoms.

19 (currently amended). Pre-expanded beads according to claim 15, wherein they contain from 0.7 to 2.9 parts, ~~preferably from 0.9 to 2.8 parts, more particularly from 1.0 to 2.7 parts~~ by weight of at least one blowing agent.

20 (currently amended). Pre-expanded beads according to claim 15, wherein they contain from 1.6 to less than 3.0 parts, ~~preferably from 1.7 to 2.0 parts, more particularly from 1.8 to 2.8 parts, especially from 1.9 to 2.7 parts~~ by weight of at least one blowing agent.

21 (currently amended). Pre-expanded beads according to claim 15, wherein the plasticising agent is ~~chosen from~~ selected from the group consisting of mineral oils, white oils, paraffin waxes and Fischer-Tropsch waxes.

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22 (currently amended). Pre-expanded beads according to claim 15, wherein they contain from 0 to 0.35 part, ~~preferably from 0 to 0.3 part, more particularly from 0 to 0.25 part~~ of at least one plasticising agent.

23 (previously presented). Pre-expanded beads according to claim 15, wherein they have a size or a diameter chosen from a range of from 0.5 to 3.5 mm.

24 (currently amended). Pre-expanded beads according to claim 15, wherein they have a bulk density chosen from a range of from 45 to 180 g/l, ~~preferably from 60 or 50 to 150 g/l, in particular from 60 or 50 to 125 g/l.~~

25-26 (cancelled).